

AMENDMENTS TO THE CLAIMS

1-14. (Canceled)

15. (Currently amended) An integrated system for monitoring and treating diabetes, the system comprising:

a glucose sensor, wherein the glucose sensor substantially continuously measures glucose in a host for a period exceeding one day-hour, and outputs a data stream, including one or more sensor data points;

a receiver operably connected to the glucose sensor, wherein the receiver is configured to receive the data stream; and

a medicament delivery device, wherein the delivery device is ~~at least one of physically and operably connected~~ detachably connectable to the receiver.

16. (Original) The integrated system according to claim 15, wherein the glucose sensor comprises an implantable glucose sensor.

17. (Original) The integrated system according to claim 15, wherein the glucose sensor comprises a long-term subcutaneously implantable glucose sensor.

18. (Currently amended) The integrated system according to claim 15, wherein the medicament delivery device comprises a syringe detachably ~~connectable~~ connected to the receiver.

19. (Currently amended) The integrated system according to claim 15, wherein the medicament delivery device comprises one or more transdermal patches detachably ~~connectable~~ connected to the receiver.

20. (Currently amended) The integrated system according to claim 15, wherein the medicament delivery device comprises an inhaler or spray delivery device detachably ~~connectable~~ connected to the receiver.

21. (Currently amended) The integrated system according to claim 15, wherein the medicament delivery device comprises a pen or jet-type injector detachably connected to the receiver.

22. (Original) The integrated system according to claim 15, wherein the medicament delivery device comprises a transdermal pump.

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23. (Original) The integrated system according to claim 15, wherein the medicament delivery device comprises an implantable pump.

24. (Original) The integrated system according to claim 15, wherein the medicament delivery device comprises a manual implantable pump.

25. (Currently amended) ~~The integrated system according to claim 15,~~ An integrated system for monitoring and treating diabetes, the system comprising:

a glucose sensor, wherein the glucose sensor substantially continuously measures glucose in a host for a period exceeding one hour, and outputs a data stream, including one or more sensor data points;

a receiver operably connected to the glucose sensor, wherein the receiver is configured to receive the data stream;

a medicament delivery device, wherein the medicament delivery device comprises a cell transplantation device; and

a processor, wherein the processor comprises programming configured to determine a host's metabolic response to cell transplantation by evaluating the sensor data points substantially corresponding to delivery or release of cells.

26. (Canceled)

27. (Currently amended) The integrated system according to claim 15, wherein the medicament delivery device is operably ~~connected~~ connectable to the receiver by a wireless connection.

28. (Currently amended) The integrated system according to claim 15, wherein the medicament delivery device is operably ~~connected~~ connectable by a wired connection.

29. (Currently amended) ~~The integrated system according to claim 15, further comprising~~ An integrated system for monitoring and treating diabetes, the system comprising:

a glucose sensor, wherein the glucose sensor substantially continuously measures glucose in a host for a period exceeding one hour, and outputs a data stream, including one or more sensor data points;

a receiver operably connected to the glucose sensor, wherein the receiver is configured to receive the data stream;

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a medicament delivery device, wherein the delivery device is at least one of physically connectable and operably connectable to the receiver; and

a single point glucose monitor, wherein the single point glucose monitor is at least one of physically and operably connectable to integral with the receiver.

30. (Currently amended) The integrated system according to claim 29, wherein glucose sensor comprises an enzyme membrane system for electrochemical detection of glucose and the single point glucose monitor comprises an enzyme membrane system for electrochemical detection of glucose.

31. (Canceled)

32. (Currently amended) ~~The integrated system according to claim 31, further comprising~~ An integrated system for monitoring and treating diabetes, the system comprising:

a glucose sensor, wherein the glucose sensor substantially continuously measures glucose in a host for a period exceeding one hour, and outputs a data stream, including one or more sensor data points;

a receiver operably connected to the glucose sensor, wherein the receiver is configured to receive the data stream; and

a medicament delivery device, wherein the delivery device is at least one of physically and operably connectable to the receiver, wherein the receiver comprises a processor, and wherein the processor comprises programming configured to calculate and output medicament delivery instructions, and wherein the microprocessor processor further comprises a validation module that validates comprising programming configured to validate the medicament delivery instructions prior to outputting the instructions.

33. (Canceled)

34. (Currently amended) ~~The integrated system according to claim 33, further comprising~~ An integrated system for monitoring and treating diabetes, the system comprising:

a glucose sensor, wherein the glucose sensor substantially continuously measures glucose in a host for a period exceeding one hour, and outputs a data stream, including one or more sensor data points;

a receiver operably connected to the glucose sensor, wherein the receiver is configured to receive the data stream; and

a medicament delivery device, wherein the delivery device is at least one of physically and operably connectable to the receiver, wherein the receiver is configured to receive medicament delivery data responsive to medicament delivery for a first time period from the medicament delivery device, and wherein the receiver comprises a microprocessor processor, and wherein the microprocessor processor comprises programming configured to determine a host's metabolic response to the medicament delivery by evaluating the sensor data points substantially corresponding to delivery and release of the medicament delivery for the first time period.

35. (Currently amended) The integrated system according to claim 34, wherein the ~~microprocessor calculates~~ processor comprises programming configures to calculate medicament therapy for a second time period responsive to sensor data and the host's metabolic response to the medicament delivery.

36. (Currently amended) The integrated system according to claim 34, wherein the ~~microprocessor processor~~ processor comprises programming to estimate glucose values responsive to glucose sensor data and host's metabolic response.

37. (New) The integrated system according to claim 25, wherein the cell transplantation device comprises beta islet cells.

38. (New) The integrated system according to claim 25, wherein the receiver comprises a processor configured to store information about the cell transplantation device, wherein the information comprises at least one of: 1) time of implant of the cell transplantation device; 2) amount of cells transplanted within the cell transplantation device; and 3) type of cells transplanted within the cell transplantation device.

39. (New) The integrated system according to claim 25, wherein the receiver comprises a processor, and wherein the processor comprises programming configured to determine a host's metabolic response to the cell transplantation device by evaluating the sensor data points substantially corresponding to a time during which the cell transplantation device is implanted in a host.

40. (New) The integrated system according to claim 29, wherein the single point glucose monitor is detachably connectable to receiver.

41. (New) The integrated system according to claim 29, wherein the single point glucose monitor is operably connectable to the receiver by a wired connection.

42. (New) The integrated system according to claim 29, wherein the single point glucose monitor is operably connectable to the receiver by a wireless connection.

43. (New) The integrated system according to claim 32, wherein the validation module comprising programming configured to validate the medicament delivery instructions is configured to validate the medicament delivery instructions responsive to at least one of data input into said receiver and data obtained from an integrated single point glucose monitor.

44. (New) The integrated system according to claim 32, wherein the medicament delivery device comprises at least one of an inhaler, a spray device, a pen, jet-type injector, a transdermal pump and an implantable pump

45. (New) The integrated system according to claim 32, wherein the processor comprises programming configured to automatically run the validation module programming when the rate of acceleration or deceleration of the sensor data is below a predetermined threshold.

46. (New) The integrated system according to claim 32, wherein the processor comprises programming configured to automatically run the validation module programming when the rate of change of the sensor data is below a predetermined threshold.

47. (New) The integrated system according to claim 32, wherein the validation module comprises programming configured to request information, wherein the information requested comprises at least one of: time of day, meals, meal time, regular medicament delivery, sleep, calories, carbohydrates, exercise, and sickness.

48. (New) The integrated system according to claim 34, wherein the programming configured to determine a host's metabolic response to the medicament delivery comprises a pattern recognition algorithm.

49. (New) The integrated system according to claim 34, wherein the programming configured to determine a host's metabolic response to the medicament delivery utilizes an input including at least one of time of medicament delivery, amount of medicament delivery, and type of medicament.

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50. (New) The integrated system according to claim 34, wherein the programming configured to determine a host's metabolic response to the medicament delivery is programmed in the processor to be repeated at predetermined intervals.

51. (New) The integrated system according to claim 34, wherein the programming configured to determine a host's metabolic response to the medicament delivery is programmed in the processor to be triggered by user input.

52. (New) The integrated system according to claim 34, wherein the programming configured to determine a host's metabolic response to the medicament delivery is programmed in the processor to be repeated during a predetermined start-up time period.